

What is claimed is:

1. A novel isolated morphogenic and growth accelerating chemical substance 1 having the following physicochemical properties:

(i) color of substance: colorless;

(ii) molecular weight: 457;

(iii) mass spectrometry: FABMS:m/z 456 [M-H]⁻ (Fig. 1); and

(iv) nuclear magnetic resonance signal:

1) ¹H-NMR(D₂O-20 mM Na₂HPO₄ (pH 9), 750 MHz): (Fig. 2)

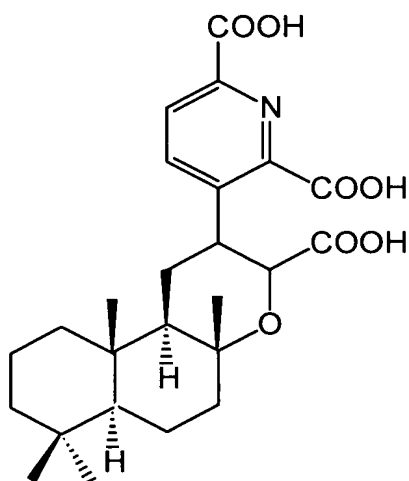
δ ppm 0.818 (3H, s), 0.837 (3H, s), 0.882 (3H, s), 0.960 (1H, m), 1.058 (1H, m), 1.167 (1H, m), 1.326 (3H, s), 1.37 (1H, m), 1.38 (1H, m), 1.40 (1H, m), 1.58 (1H, m), 1.61 (2H, m), 1.52 (1H, br d, J = 13 Hz), 1.76 (1H, br d, J = 14 Hz), 2.024 (1H, m), 2.181 (1H, dd, J = 4, 14 Hz), 2.291 (1H, dd, J = 14, 16.5 Hz), 7.698 (1H, d, J = 7.5 Hz), 7.845 (1H, d, J = 7.5 Hz); and

2) ¹³C-NMR(D₂O-20 mM Na₂HPO₄ (pH 9), 125 MHz): (Fig. 3)

δ ppm 15.236 (q), 19.037 (t), 20.287 (t), 20.955 (q), 21.835 (q), 25.987 (t), 33.381 (s), 33.636 (q), 37.308 (s), 39.590 (t), 41.199 (t), 42.346 (t), 52.769 (d), 56.381 (d), 79.096 (s), 114.965 (s), 124.399 (d), 139.004 (s), 141.232 (d), 150.282 (s), 152.656 (s), 172.081 (s), 173.538 (s), 174.661 (s).

2. The novel chemical substance 1 according to claim 1, which is obtainable from the YM-2-23 strain (FERM BP-8417).

3. The novel chemical substance 1 according to claim 1, which is represented by the following formula:



4. The novel chemical substance 1 according to claim 1, which has the molecular formula: $C_{25}H_{31}NO_7$.

5. A novel isolated morphogenic and growth accelerating chemical substance 2 having the following physicochemical properties:

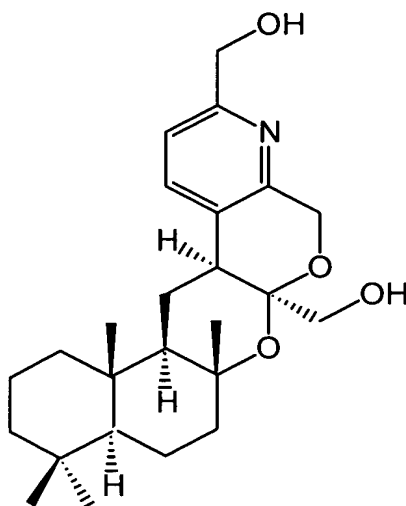
(i) color of substance: colorless; and

(ii) nuclear magnetic resonance signal:

1H -NMR(D_2O -20 mM Na_2HPO_4 (pH 9), 500 MHz): (Fig. 4)

δ ppm 0.815 (3H, s), 0.834 (3H, s), 0.877 (3H, s), 0.949 (1H, m), 1.048 (1H, m), 1.163 (1H, m), 1.297 (3H, s), 1.35 - 1.40 (3H, m), 1.52 - 1.63 (4H, m), 1.753 (1H, br d, J = 14 Hz), 2.012 (1H, m), 2.158 (1H, m), 2.299 (1H, m), 7.646 (1H, d, J = 8.0 Hz), 7.769 (1H, d, J = 8.0 Hz).

6. A compound represented by the following formula:



7. A process for producing a novel chemical substance 1, wherein microorganisms capable of producing the novel chemical substance 1 according to claim 1 are cultured in medium, the novel chemical substance 1 is generated and accumulated in the cultures, and the generated and accumulated novel chemical substance 1 is recovered.

8. A process for producing a novel chemical substance 2, wherein microorganisms capable of producing the novel chemical substance

2 according to claim 5 are cultured in medium, the novel chemical substance 2 is generated and accumulated in the cultures, and the generated and accumulated novel chemical substance 2 is recovered.

9. The production process according to claim 7, wherein the microorganisms are YM-2-23 strain (FERM BP-8417), or an analogous strain thereof.

10. The production process according to claim 8, wherein the microorganisms are YM-2-23 strain (FERM BP-8417), or an analogous strain thereof.

11. Culture medium for algae comprising, as an active ingredient, the novel chemical substance 1 according to claim 1.

12. Culture medium for algae comprising, as an active ingredient, the novel chemical substance 2 according to claim 5.

13. A monomethylated, dimethylated, or trimethylated form of the novel chemical substance 1 obtained by treating the novel chemical substance 1 according to claim 1 with trimethylsilyldiazomethane.

14. A compound or a derivative thereof obtained by treating the trimethylated form according to claim 13 with sodium borohydride.